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TITLE : HIGH COERCIVE FORCE IRON BASE PERMANENT MAGNET AND BONDED
MAGNET

ABSTRACT : PURPOSE: To provide a high coercive force iron base permanent magnet and a bonded magnet which are formed of iron as main component, low in material cost, possessed of an intrinsic coercive force (iHc) 700kA/m or above which a hard ferrite or an existing nano composite magnet is unable to attain, with high oxidation resistance.

CONSTITUTION: Alloy which contains Fe and B as a main component and 7 atom % or more of Nd, Pr, Dy, and Cr is turned amorphous by solidification through a quenching method, the amorphous alloy is subjected to a crystallizing thermal treatment into a metal nano composite where a soft magnetic phase, a hard magnetic phase, and a non-magnetic phase of the order of tens of nm are mixedly present, and the metal nano composite is ground into magnetic powder used for a bonded magnet of high coercive force excellent in oxidation resistance. Therefore, the magnetic powder concerned and high-melting thermoplastic resin such as PPS or nylon are kneaded together, whereby a bonded magnet of high heat resistance can be realized through injection molding.

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